



Sandwich Junior School



Science

Mission Statement

The aim of science education in our school is to inspire and encourage children to continue to ask questions about the world around them; to develop and broaden existing knowledge of everyday natural and human constructed phenomena and the relationships between them by exploring and testing their ideas. During their time at SJS, they will look at the work of past and present scientists, the challenges they faced and overcame, as well as the understanding of the processes and methods of science. By the end of their school journey, they should have the knowledge and skills to be able to fully engage with the KS3 curriculum, to understand the importance of science and STEM careers and ultimately be able to make informed judgements as a valued member of society.

The delivery of science within the school comprises of the teaching of substantive knowledge (current facts/theories), alongside the teaching of disciplinary skills (the skills that a scientist needs to investigate a question). Science is taught as a discrete subject but utilises the many opportunities for cross curricular links between a wide array of other subjects. For example, using mathematical skills to be able to undertake accurate measurements with a range of equipment, recording and analysing the data. We can make connections to art, science and history through the work of previous botanical scientists and early anatomists. There are rich opportunities for debate and discussion of the relationship of religion and science throughout the ages. Nearly every curriculum subject has a role within science and the skills of reading and English underpin much of this – well chosen texts enrich children's understanding of scientist's work, or offer opportunities to raise questions, plan investigations or carry out their own secondary research.

Our science progression and curriculum document sets out the structure of our curriculum, the prior knowledge needed for each year group and topic (including the vocabulary expectations). Children's prior knowledge is checked before each new area of learning and regularly revisited in each science lesson and throughout the school day to ensure that work enables consolidation and challenge where needed. Knowledge is taught through a range of teaching styles and activities, which may be research based, practical enquiry, model making or drama.

Children are taught from their inception the strands of scientific enquiry and these are referred to in every lesson so that children develop an understanding of which methods are most suitable to answering the questions they raise. These include making observations over time, noticing patterns, grouping and classifying, carrying out simple comparative and fair tests, finding knowledge out using secondary sources of information and making simple models.

Children are given frequent opportunities to undertake their own observations, as well as carry out investigations independently or as a small group to explore and test the questions that have been raised. They are taught how to use scientific equipment correctly and safely, to record increasingly more accurate measurements and consider the validity of their data.

The Core Values permeate through every aspect of our school life and science is no exception. Children use the perseverance of the Salmon to develop the resilience of a scientist; the Dolphin for science awe and wonder and fun in undertaking scientific activities, as well as understanding how things work; the Eagle to soar high, ask questions, suggest further lines of investigation and look to key scientific figures as role models; and finally, the Wolf to work well with others, communicate effectively, and to discuss and share ideas

Throughout the year, many enrichment opportunities take place to promote an awareness of STEM, STEM-based careers and to increase the 'science capital' of all our pupils. These include entering internal and external competitions (using a range of media), making science visits within Kent, receiving science visitors (including STEM ambassadors), close links to Discovery Park, a focused Science Week, Parent Child Science Workshops, Science Club and also the chance to be an SJS Science Ambassador.

End Points

By the time pupils have reached the **end of Year 4** they should have (taken from the Statutory guidance National Curriculum in England: science programmes of study (6th May 2015):

- They should ask their own questions about what they observe and make some decisions about which types of scientific enquiry are likely to be the best ways of answering them, including observing changes over time, noticing patterns, grouping and classifying things, carrying out simple comparative and fair tests and finding things out using secondary sources of information.
- They should draw simple conclusions and use some scientific language, first, to talk about and, later, to write about what they have found out.
- Pupils should read and spell scientific vocabulary correctly and with confidence, using their growing word-reading and spelling knowledge.

By the time pupils have reached the **end of Year 6** they should have (taken from the Statutory guidance National Curriculum in England: science programmes of study (6th May 2015):

- Pupils should have developed a deeper understanding of a wide range of scientific ideas.
- They should explore and talk about their ideas; ask their own questions about scientific phenomena; and analyse functions, relationships and interactions more systematically.
- They should have encountered more abstract ideas and begin to recognise how these ideas help them to understand and predict how the world operates.
- They should also begin to recognise that scientific ideas change and develop over time.
- They should select the most appropriate ways to answer science questions using different types of scientific enquiry, including observing changes over different periods of time, noticing patterns, grouping and classifying things, carrying out comparative and fair tests and finding things out using a wide range of secondary sources of information.
- Pupils should draw conclusions based on their data and observations, use evidence to justify their ideas, and use their scientific knowledge and understanding to explain their findings.
- Pupils should read, spell and pronounce scientific vocabulary correctly.